

## CLINICO – LABORATORY PROFILE OF ENTERIC FEVER IN CHILDREN

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### Abstract

**Background:** The aim of the study was to study the clinical profile, laboratory parameters of enteric fever cases in pediatric age group.

**Methods:** This was a prospective study carried on Pediatric patients aged 1 to 14 years with clinically suspected enteric fever (fever for 5 days or more with no primary focus on clinical examination) and proven either by positive blood culture or Widal test with significant titre (level of both H or O antibodies of 1 in 160 dilution or more by tube method) were enrolled in the study.

**Results:** The mean white blood cell (WBC) count was  $8256.32 \pm 1236.12$  cells/cumm. Out of 100 patients, 73(73.00%) had WBC count within the normal range (4000-11000 cells/cumm). 3(3.00%) had leucopenia, while 24(24.00%) had leucocytosis. 4(4.00%) patients had thrombocytopenia

**Conclusions:** Enteric fever is major cause of febrile illness in children (especially school going). Fever with abdominal pain, vomiting and diarrhea were major clinical manifestations. There was 100% sensitivity to ceftriaxone, which was highly effective as monotherapy.

**Keywords:** WBC, Typhoid, Clinical profile.

### Introduction

Enteric fever is a systemic bacterial infection caused by *Salmonella* enteric serotype Typhi or Paratyphi A or B. Symptoms may vary from mild to severe. Often there is gradual onset of a high fever over several days. Weakness, abdominal pain, constipation and headaches also commonly occur. As enteric fever is a disease transmitted by the feco-oral route, its greatest burden is in resource-limited countries where water supply and sanitary conditions are poor. Enteric fever is the most common cause of fever lasting for more than 7 days in clinical practice in India.<sup>1</sup>

It is endemic in India and reported data for the year 2014 shows 1.53 million cases and 361 deaths. Diagnosis of enteric fever is fraught with problems. History, physical findings and fever pattern are suggestive but can neither confirm nor exclude typhoid. Blood culture is the 'gold standard' for diagnosis and also gives information about antibiotic sensitivity of the isolate; however the cost of cultures and administration of prior antibiotics are hindrance in this diagnostic approach. The Widal test is very commonly used in Indian set up for diagnosis of enteric fever, but has problems in its interpretation. Since 1990's, *S. Typhi* has developed resistance simultaneously to all the drugs used in first line treatment

(chloramphenicol, cotrimoxazole and ampicillin). Fluoroquinolones when first introduced in early 1990's were very effective but the past decade has seen a progressive increase in the MICs of ciprofloxacin and high incidence of clinical failure to quinolones. The beta lactams such as cefixime and ceftriaxone are now being increasingly used, but these are expensive drugs and are associated with a long time to defervescence.<sup>2-3</sup>

### Methods

This was a prospective study carried on Pediatric patients aged 1 to 14 years with clinically suspected enteric fever (fever for 5 days or more with no primary focus on clinical examination) and proven either by positive blood culture or Widal test with significant titre (level of both H or O antibodies of 1 in 160 dilution or more by tube method) were enrolled in the study. Others who were clinically diagnosed with enteric fever but had negative widal test or titre less than the significant titre or negative blood culture were excluded from the study. Clinical, laboratory and treatment information were taken on a detailed proforma and analyzed.

### Results

**Table 1: Demographic profile**

Age	8.12± 2.12 Yrs
Male : Female	59 : 41

**Table 2: Clinical profile**

Fever	92 (92.00%)
Abdominal pain	47 (47.00%)
Diarrhea	12 (12.00%)
Vomiting	35(35.00%)
Cough	14 (14.00%)
Hepatomegaly	12 (12.00%)
Splenomegaly	18 (18.00%)

The mean white blood cell (WBC) count was  $8256.32 \pm 1236.12$  cells/cumm. Out of 100 patients, 73(73.00%) had WBC count within the normal range (4000-11000 cells/cumm). 3(3.00%) had leucopenia, while 24(24.00%) had leucocytosis. 4(4.00%) patients had thrombocytopenia.

### Discussion

This is a single centre study of enteric fever cases studying the clinical features, laboratory findings from the patients. There are few studies for clinical features of enteric fever in pediatric patients. 64.00% of the patients in our study group are above 5 years (school going) which is similar to other studies. Fever was the most common clinical feature in the patients of our study group which is similar to previous studies. Abdominal pain was present in 47.00% which is higher than other studies, wherein it ranged from 16 – 46%. Vomiting (35.00%) is in the same range as other studies (37–49%). Diarrhoea was present in 12.00% which is similar to other studies, wherein it ranged from 8-29%. Hepatomegaly was seen in 12.00% patients which is lesser than other studies (21-71%). Splenomegaly (18.00%) is comparatively lower than other studies (34%). Normal leucocyte count was seen in most of our patients which is similar to earlier studies. Thrombocytopenia is reported in 4.00% of cases which is lesser than earlier studies (10-15%).<sup>3-7</sup>

### Conclusion

Enteric fever is an important cause of febrile illness in children (especially school going). Fever with abdominal pain, vomiting, diarrhea, hepatomegaly and splenomegaly

were the common clinical manifestations of enteric fever.

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